DISCOVERY OF THE MARTIAL CANALS-IS THE RED PLANET INHABITED?

The discovery of a network of so called canals upon the planet Mars by Schiaparelli several years ago, has been confirmed this year by observers both in England and Italy. In 1887, Mars, being on the same side of the sun that the earth was, and in that part of its orbit which brought it unusually close to the earth, shone with great splendor in the midnight sky. It was under these favorable circumstances that Professor Hall, with the huge telescope that had just been set at Washington, caught sight of two small moons revolving close around Mars, and moving so swiftly that they might almost be compared to little golden shuttles playing back and forth on either side of the ruddy planet's disc. The fame of this discovery was so great, and the delight of the astronomers, who found here a new and totally unexpected test of the laws of planetary motion, so un-bounded that another discovery made at the same time received comparadiscovery was the work of the keen-eyed director of the Milan Observa-tory, M. Schiaparelli. He found that the equatorial regions of Mars were intersected by long narrow lines which resembled in color those spots that are believed to be seas, and which be-gun and ended in these Martian seas, thus inciting a close connection be tween them.

The shape of these supposed watercourses suggested the name "canals," which was applied to them. Some Mars is very different from that on astronomers of reputation argued that the earth, and Mars has as much dry which was applied to them. Some they really were canals constructed land as it has water. Its atmosphere by the suppositious inhabitants of also probably differs very much from by the suppositious inhabitants of Mars; and to the objection that the canals were too large to admit of the supposition that they could be artificial works—some being sixty miles or more broad—they replied that since the force of gravity upon Mars is very much less than upon the earth, the inhabitants of that planet might at tain a proportionately greater stature and a muscular power and agility that would enable them to undertake works utterly beyond the capacity of terrestrial men. This sort of speculation tended to bring Schiaparelli's really brilliant discovery into derision, particularly among those whose telescopes did not reveal the phenomena he had detected. But Schiaparelli insisted that he had seen what he had seen, and his discovery was defended by his well-established reputation as an

In 1879, Mars being once more favorably situated, he saw his canals again, and discovered a number of new ones, and in the fall and winter of 1881-82 he repeated his observations. On these last two occasions he made a still more surprising discovery -namely, that the canals, or many of them, were double. Right alongside those which he had seen before, and following the same sinuosities, he detected new canals. He made a map of Mars on Mercator's projection, and in this map the whole surface of the planet, except in the polar regions, is seen covered with a network of dark seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions, is seen covered with a network of dark of the polar regions. the continents in every direction, and invariably ending in the surrounding

The manner in which the doubling of the canals was affected was not the least astonishing part of the discovery. They were not all seen double at once. Schiaparelli himself suggested that the phenomenon depended in some way upon the seasons of the planet. One after another the canals would double up. No less than seventeen successively exhibited this appearance in the course of a single month. The new canal would appear at first as a faint streak, barely discernable along side of the old one. It would then rapidly become darker and plainer, until in the course of a few days it was as broad and distinct as the original canal.

The strange doubling of the so-called canals made the whole phenomenon appear to those who were originally inclined to doubt its reality as the result of mere imagination or selfdeception on the part of the observer. Schiaparelli himself relates that he was so astounded by what he saw that at first he thought he must be the victim of an "illusion, caused by fatigue of the eye and some new kind of strabismus." But he convinced himself by the most pains aking observations that there was no deception about his discovery. "As things stand," he said, "it would be premature to put forth conjectures about the nature of these canals. As to their existence I need not say that I have taken every necessary precaution to avoid even the suspicion of illusion, and I am absolutely certain of what I have seen." Yet, notwithstanding M. Schiapar-

elli's assurance that the world of Mars really possesses these curious markings, the fact has hitherto rested principally upon his observations alone. To be sure, a few of his canals had been detected several years before his original observation, notably by Dawes, but nobody besides Schiaparelli had beheld the phenomenon on any such scale as was exhibited in his map. But now confirmation of his discoveries comes from two most trustworthy sources. During the opposi-tion of Mars this year, Mr. Denning, of Bristol, and M.M. Thollon and Perrotin, of Nice, undertook careful tele scopic studies of the planet's surface. Mr. Denning was able to detect the existence of Schiaparelli's canals, although they were very faint lines as he saw them, and he did not perceive them double. Nevertheless he saw enough to convince him that there was no deception in the Italian astronomer's observations.

M.M.: Perrotin and Thollon, in the purer skies of Nice, were able to accomplish much more. They plainly saw the double canals of Schiaparelli and also detected the curious and [1147 8m]

rapid changes in the appearance of these objects that so astonished their original discoverer. Schiaparelli him self, at about the same time re-discovered the double canals. The astronomers at Nice also caught sight of several shining points lying south of the north polar snow fields of Mars, and closely resembling similar phenomena perceived by Mr. Green at Madeira in 1877, near the southern snow cap of that planet. It has been suggested that these brilliant spots, whose visi-bility apparently depends upon the seasons, may be mountainous islands so situated that they are covered with snow and ice during parts of the year, and disappear to our eyes when the

snow melts. The singular and most interesting pectacle of clouds in the atmosphere of Mars, obscuring portions of its surface and changing their form and position, as if driven by winds, was also witnessed by M.M. Perrotin and Thollon. Through these drifting clouds they beheld glimpses of some of the lands and seas of Mars, now shining out distinctly, as if in bright sunshine, and now becoming obscure with shadow or disappearing entirely under a vaporous veil.

Those who formerly thought that the moon might be an inhabited world found the foundation of their belief cut away from under them when it became evident that the moon is destitute of air and water. But this powerful argument against habitableness cannot be applied in this case of Mars. The planet surely possesses an atmosphere and water. It is true that the distribution of the lands and seas on ours. Yet it does possess both water and air, and so, although the condi-tions of life there would vary widely from those prevailing upon the earth, it is upon the whole more reasonable to conclude that life in some form exists upon Mars than that it is a dead and deserted world like the moon For this reason discoveries concerning the physical condition of Mars possess a peculiar interest. As science does not forbid the belief that Mars may be inhabited by intelligent beings, we are not obliged to look upon the various features of its surface that powerful telescopes reveal as merely so many details of a desert and ten-antless landscape, but rather we may consider them as the environments of sensible beings, who, inasmuch as they belong to our solar system, and, like ourselves, are journeying onward with the sun, must be regarded as our fellow voyagers through space.

Like the crew and passengers of a lone ship, long tossed upon a boundless ocean, we strain our eyes after this distant consort of the earth and wish for telescopes of almost infinite power that we might catch a glimpse of friendly faces looking out from that faraway sail.—New York Sun.

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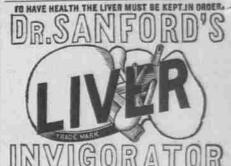
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